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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/723,221	Applicant(s) MATHEW ET AL.
	Examiner WESLEY TUCKER	Art Unit 2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 25 August 2008.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1,4-27,30 and 31 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1, 4-27 and 30-31 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/96/08)
Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date _____

5) Notice of Informal Patent Application

6) Other: _____

DETAILED ACTION

Response to Amendment

1. Applicant's amendment filed August 25th 2008 has been entered and made of record.
2. Applicant has not amended claims. Claims 2-3 and 28-29 have been cancelled. Claims 1, 4-27 and 30-31 are now pending.
3. Applicant's remarks in view of the newly amended claims have been found to be persuasive. A new non-final rejection is presented in view of the secondary reference to Wang et al. The new rejection is presented below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 4-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of U.S. Patent 5,825,908 to Pieper et al and U.S. Patent Publication No. US2003/0212327 to Wang et al.

With regard to claim 1, Pieper discloses a method of processing image data comprising:

Comparing image data representative of a plurality of images, wherein the plurality of images represent spatially adjacent subject matter (Figs. 3, 11 and 14);

Characterizing a level of change of the image data from one image to the next in the plurality of images (column 13, lines 10-32 and Figs. 3, 11 and 14); and

Presenting a viewer with indicia of relative levels of change of the image data for the plurality of images (column 13, lines 10-32 and Figs. 3, 11 and 14).

Pieper discloses a system for creating a 3D model for use in medical diagnostics. Multiple reconstructed images "slices" or frames are taken of a 3D object, and from these slices, a 3D model is created. New slices can also be created in directions perpendicular to the first slice direction. Pieper also discloses a user interface that enables a user to navigate through the 3D model by scrolling back and forth between the slices. The level of change between these images is evident in that each slice is slightly different from the last and that each slice represents a change in position in the 3D model. Indeed in order to reconstruct a slice in a different direction from the series of captured slices (for example when the captured slices are axial and the reconstructed slice is in the sagittal or coronal direction), the difference between each slice must be known to some extent in order to create a reconstructed slice by interpolating between each of the sampled slices. This is interpreted as a graphical representation of progressive change. Fig. 11 shows an interface with a slider bar 70 that can be used to scroll through images by dragging the slider left or right to view the next image slices in

the model for example. Fig. 14 shows the corresponding slices in different directions for a location within the 3D model. When the user views the slices by sliding back and forth this is considered an indicia of levels of change of the plurality of images. Indeed the level of change between each image can be seen as the slice gradually and progressively changes as the slice passes through a patient's liver for example.

Pieper does not explicitly disclose calculating a level of change of the image data from one image to the next and presenting a viewer an indicia of the calculated levels of change. However an argument can be made that by reconstructing a slice from sampled slices that, the levels of change are calculated in some fashion in order to create a reconstructed slice and that the reconstructed slice image is in itself an indicia presented to the user indicating calculated levels of change. The secondary reference to Wang is cited to teach an explicit calculation of change levels and presentation of calculated change levels between each slice (Figs. 12A, 12B and 13 and paragraphs [0077]-[0082]). Wang teaches calculating the levels of change in image data from one slice to the next and displaying them in graphical form as indicia presented to the user (Figs. 12A and 12 B). The motivation to track changes from one slice to the next is to better analyze the medical images in a way to provide better diagnosis and to track the performance of the imaging system itself. Wand teaches that algorithms are used to track changes between the slices in order to better identify masses of a certain size (paragraph [0079]). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to use the slice image data difference calculations and

display taught by Wang in combination with the 3D navigation system of Pieper in order to better examine the medical images for diagnosis purposes.

With regard to claim 4, Pieper discloses the method of claim 1, wherein the level of change is characterized by analyzing absolute differences between adjacent images in the plurality of images (column 11, lines 18-35). Pieper discloses the generation of a 3D model using the multiple 2D slices that are for example 1mm apart (column 9, lines 55-64). In order to construct a 3D model with a continuous surface, the difference between each adjacent slice image must be inherently known. The content of the 3D model between each slice must be interpolated or at the very least guessed. Therefore the absolute differences are compared between each pair of slices in order to create the 3D model and reconstructed 3D surface. The discussion with regard to Wang also applies. Wang teaches that the statistical differences between the slices are tracked (paragraph [0079])). Using the difference between adjacent slice images gives a better overall measure of the change from one image to the next.

With regard to claim 5, Pieper discloses the method of claim 4, wherein the absolute differences are analyzed on a pixel-by-pixel basis (column 11, lines 18-35). The differences between each slice must be known to create the 3D image model. The differences in between each slice are considered determined on a pixel-by-pixel basis, as the differences between each slice may be very small, each slice being 1mm apart.

With regard to claim 7, Pieper discloses the method of claim 1, wherein the presented indicia include a graphical representation of progressive change between images of the plurality of images (Figs. 3, 11 and 14). Pieper discloses the slider 70 of Fig. 11, which is considered a graphical representation of progressive change between images. Pieper also discloses the creation of 3D model, which is also a graphical representation of the progressive change between images as a reconstructed slice is created by determining the differences between the sampled slice images. Wang also discloses a graphical representation of the difference between multiple adjacent slices (Figs 12A and 12B).

With regard to claim 8, Pieper discloses the method of claim 7 comprising presenting the viewer with a virtual tool for navigating through the plurality of images based upon the progressive change between images (Fig. 11).

With regard to claim 9, Pieper discloses a method for diagnosing a patient, comprising:

Acquiring a plurality of reconstructed images via a medical imaging system (Figs. 11, 12 and 13 and column 9, lines 1-10);

Comparing image data representative of the plurality of reconstructed images (column 9, lines 55-64 and column 13, lines 10-32); and

Generating a scout navigation tool by quantifying a level of change of the image data from one reconstructed image to the next in the plurality of reconstructed images, the scout navigation tool including a graphical representation of progressive change between reconstructed images and a virtual tool for navigating through the plurality of reconstructed images based upon the level of change (column 13, lines 10-32 and Figs. 11 and 14).

Pieper discloses a system fro creating a 3D model for use in medical diagnostics. Multiple reconstructed images "slices" or frames are taken of a 3D object, and from these slices, a 3D model is created. New slices can also be created in directions perpendicular to the first slice direction. Pieper also discloses a user interface that enables a user to navigate through the 3D model by scrolling back and forth between the slices. The level of change between these images is evident in that each slice is slightly different from the last and that each slice represents a change in position in the 3D model. The change from one slice to the next is quantified in order to reconstruct a reconstructed slice from the multiple sampled slices in a different direction. The sampled slices are interpolated between which inherently requires the difference between adjacent slices be known. This is interpreted as a graphical representation of progressive change. Fig. 11 shows an interface with a slider bar 70 that can be used to scroll through images by dragging the slider left or right to view the next image slices in the model fro example. Fig. 14 shows the corresponding slices in different directions for a location within the 3D model.

Pieper does not explicitly disclose calculating a level of change of the image data from one image to the next and presenting a viewer an indicia of the calculated levels of change. However an argument can be made that by reconstructing a slice from sampled slices that, the levels of change are calculated in some fashion in order to create a reconstructed slice and that the reconstructed slice image is in itself an indicia presented to the user indicating calculated levels of change. The secondary reference to Wang is cited to teach an explicit calculation of change levels and presentation of calculated change levels between each slice (Figs. 12A, 12B and 13 and paragraphs [0077]-[0082]). Wang teaches calculating the levels of change in image data from one slice to the next and displaying them in graphical form as indicia presented to the user (Figs. 12A and 12 B). The motivation to track changes from one slice to the next is to better analyze the medical images in a way to provide better diagnosis and to track the performance of the imaging system itself. Wang teaches that algorithms are used to track changes between the slices in order to better identify masses of a certain size (paragraph [0079]). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to use the slice image data difference calculations and display taught by Wang in combination with the 3D navigation system of Pieper in order to better examine the medical images for diagnosis purposes.

With regard to claim 10, Pieper discloses the method of claim 9, comprising displaying the scout navigation tool on a viewable screen (Figs. 11 and 14).

With regard to claim 11, Pieper discloses the method of claim 10, comprising receiving inputs from a viewer via the scout navigation tool and displaying reconstructed images from the plurality of reconstructed images based upon the inputs (Fig. 11, see discussion of slider bar 70).

With regard to claim 12, Pieper discloses the method of claim 10, comprising receiving inputs from a viewer via the scout navigation tool and storing reconstructed images from the plurality of reconstructed images based upon the inputs (Figs. 11 and 14).

With regard to claim 13, Pieper discloses the method of claim 10, comprising receiving inputs from a viewer via the scout navigation tool and processing reconstructed images from the plurality of reconstructed images based upon the inputs (Figs. 11 and 14).

With regard to claim 14, Pieper discloses the method of claim 10, comprising displaying the scout navigation tool adjacent to an image viewing region of the viewable screen (Fig. 11, element 70).

With regard to claim 15, Pieper discloses the method of claim 9, wherein the plurality of reconstructed images represent a same subject of interest at different points in time (Figs. 11 and 14). Pieper discloses a CT scan or MRI environment wherein

pictures are taken one at a time of incremental slice images of a portion of the subject. This is considered different points in time and of the same subject of interest.

With regard to claim 16, Pieper discloses the method of claim 9, wherein the plurality of reconstructed images represent spatially adjacent subject matter at generally the same point in time (Figs. 11 and 14).

With regard to claim 17, Pieper discloses the method of claim 9, wherein the level of change is characterized by analyzing absolute differences between adjacent images in the plurality of images (column 11, lines 18-35). Pieper discloses the generation of a 3D model using the multiple 2D slices that are for example 1mm apart (column 9, lines 55-64). In order to construct a 3D model with a continuous surface, the difference between each adjacent slice image must be inherently known. The content of the 3D model between each slice must be interpolated or at the very least guessed. Therefore the absolute differences are compared between each pair of slices in order to create the 3D model and reconstructed 3D surface. The discussion with regard to Wang also applies. Wang teaches that the statistical differences between the slices are tracked (paragraph [0079])). Using the difference between adjacent slice images gives a better overall measure of the change from one image to the next.

With regard to claim 18, Pieper discloses the method of claim 17, wherein the absolute differences are analyzed on a pixel-by-pixel basis (column 11, lines 18-35). The differences between each slice must be known to create the 3D image model. The differences in between each slice are considered determined on a pixel-by-pixel basis, as the differences between each slice may be very small, each slice being 1mm apart.

With regard to claim 20, Pieper discloses a system for processing image data comprising:

A memory device for storing image data (column 4, lines 55-65);
Processing circuitry (column 4, lines 55-65) configured to compare image data representative of a plurality of images acquired via a medical imaging system and not as video and to generate a scout navigation tool by computing a level of change of the image data from one image to the next in the plurality of images, the scout navigation tool including a graphical representation of progressive change between images of the plurality of images and a virtual tool navigating through the plurality of images based upon level of change (column 13, lines 10-32 and Figs. 11 and 14).

Pieper discloses a system for creating a 3D model for use in medical diagnostics. Multiple reconstructed image slices or frames are taken of a 3D object, and from these slices, a 3D model is created. New slices can also be created in directions perpendicular to the first slice direction. Pieper also discloses a user interface that enables a user to navigate through the 3D model by scrolling back and forth between

the slices. The level of change between these images is evident in that each slice is slightly different from the last and that each slice represents a change in position in the 3D model. This is interpreted as a graphical representation of progressive change. Fig. 11 shows an interface with a slider bar 70 that can be used to scroll through images by dragging the slider left or right to view the next image slices in the model fro example. Fig. 14 shows the corresponding slices in different directions for a location within the 3D model.

Pieper does not explicitly disclose computing a level of change of the image data from one image to the next and presenting a viewer an indicia of the calculated levels of change. However and argument can be made that by reconstructing a slice from sampled slices that, the levels of change are calculated in some fashion in order to create a reconstructed slice and that the reconstructed slice image is in itself an indicia presented to the user indicating calculated levels of change. The secondary reference to Wang is cited to teach an explicit calculation of change levels and presentation of calculated change levels between each slice (Figs. 12A, 12B and 13 and paragraphs [0077]-[0082]). Wang teaches calculating the levels of change in image data from one slice to the next and displaying them in graphical form as indicia presented to the user (Figs. 12A and 12 B). The motivation to track changes from one slice to the next is to better analyze the medical images in a way to provide better diagnosis and to track the performance of the imaging system itself. Wand teaches that algorithms are used to track changes between the slices in order to better identify masses of a certain size (paragraph [0079]). Therefore it would have been obvious to one of ordinary skill in the

art at the time of invention to use the slice image data difference calculations and display taught by Wang in combination with the 3D navigation system of Pieper in order to better examine the medical images for diagnosis purposes.

With regard to claim 21, Pieper discloses the system of claim 20, comprising a user viewable display for displaying the scout navigation tool and images from the plurality of images based upon user inputs (Fig. 11, see slider 70).

With regard to claim 22, Pieper discloses the system of claim 21, comprising a user input device for selection of images for viewing from the plurality of images via manipulation of the virtual tool (Fig. 11, see slider 70).

With regard to claim 23, Pieper discloses the system of claim 22, wherein the virtual tool includes a slider displayed adjacent to the graphical representation (Fig. 11).

With regard to claim 24, Pieper discloses a system for diagnosing a patient comprising:

Means for comparing image data representative of a plurality of diagnostic images of the patient acquired via medical imaging system, wherein the plurality of images represent spatially adjacent subject matter (Figs. 11 and 14);

Means for characterizing a level of change of the image data from one image to the next in a plurality of images (Fig. 11); and

Means for presenting a viewer with indicia of relative levels of change of the image data for the plurality of images (column 13, lines 10-32 and Figs. 11 and 14).

Pieper discloses a system for creating a 3D model for use in medical diagnostics. Multiple reconstructed image slices or frames are taken of a 3D object, and from these slices, a 3D model is created. New slices can also be created in directions perpendicular to the first slice direction. Pieper also discloses a user interface that enables a user to navigate through the 3D model by scrolling back and forth between the slices. The level of change between these images is evident in that each slice is slightly different from the last and that each slice represents a change in position in the 3D model. This is interpreted as a graphical representation of progressive change. Fig. 11 shows an interface with a slider bar 70 that can be used to scroll through images by dragging the slider left or right to view the next image slices in the model for example. Fig. 14 shows the corresponding slices in different directions for a location within the 3D model.

Pieper does not explicitly disclose calculating a level of change of the image data from one image to the next and presenting a viewer an indicia of the calculated levels of change. However an argument can be made that by reconstructing a slice from sampled slices that, the levels of change are calculated in some fashion in order to create a reconstructed slice and that the reconstructed slice image is in itself an indicia presented to the user indicating calculated levels of change. The secondary reference to Wang is cited to teach an explicit calculation of change levels and presentation of calculated change levels between each slice (Figs. 12A, 12B and 13 and paragraphs

[0077]-[0082]). Wang teaches calculating the levels of change in image data from one slice to the next and displaying them in graphical form as indicia presented to the user (Figs. 12A and 12 B). The motivation to track changes from one slice to the next is to better analyze the medical images in a way to provide better diagnosis and to track the performance of the imaging system itself. Wand teaches that algorithms are used to track changes between the slices in order to better identify masses of a certain size (paragraph [0079]). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to use the slice image data difference calculations and display taught by Wang in combination with the 3D navigation system of Pieper in order to better examine the medical images for diagnosis purposes.

With regard to claim 26, Pieper discloses a computer readable medium having instructions for performing the method discussed in independent claims 9, 20, 24 and 25 (column 11, lines 50-65).

With regard to claim 27, Pieper discloses a computer readable medium (column 11, lines 50-65). The discussion of claims 9, 20, 24 and 25 also apply.

5. Claims 6, 19 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of U.S. Patent 5,825,908 to Pieper et al and U.S.

Patent Publication No. US2003/0212327 to Wang et al and further in view of U.S. Patent 7,071,689 to Golay et al.

With regard to claim 6, Pieper and Wang teach the method of claim 1, but do not explicitly disclose, wherein characterizing a level of change of the image data includes characterizing change due to noise in the image data, and not including changes due to noise in the presented media (Fig. 5D and column 15, lines 5-25). Golay teaches determining Signal to Noise Ratio differences across the multiple slices from one to the next. It would have been obvious to one of ordinary skill in the art to take into account the Signal to noise ratios taught by Golay in order to compensate for noise found in the images.

With regard to claim 19, the discussion of claim 6 applies.

With regard to claim 25, Pieper discloses a system for processing image data comprising:

Means for comparing image data representative of a plurality of images acquired via a medical diagnostic imaging system (Figs. 11 and 14); and

Means for generating a scout navigation tool by characterizing a level of change of the image data from one image to the next in the plurality of images, the scout navigation tool including a graphical representation of progressive change between images of the plurality of images and a virtual tool for navigating through the plurality of

images based upon the level of change (column 13, lines 10-32 and Figs. 11 and 14), wherein characterizing a level of change of the image data includes characterizing change due to noise in the image data (column 6, lines 34-41).

Pieper discloses a system for creating a 3D model for use in medical diagnostics. Multiple reconstructed image slices or frames are taken of a 3D object, and from these slices, a 3D model is created. New slices can also be created in directions perpendicular to the first slice direction. Pieper also discloses a user interface that enables a user to navigate through the 3D model by scrolling back and forth between the slices. The level of change between these images is evident in that each slice is slightly different from the last and that each slice represents a change in position in the 3D model. This is interpreted as a graphical representation of progressive change. Fig. 11 shows an interface with a slider bar 70 that can be used to scroll through images by dragging the slider left or right to view the next image slices in the model for example. Fig. 14 shows the corresponding slices in different directions for a location within the 3D model. Pieper also discloses that noise is accounted for when creating the 3D model data (column 6, lines 34-51).

Pieper does not explicitly disclose quantifying a level of change of the image data from one image to the next and presenting a viewer an indicia of the calculated levels of change. However an argument can be made that by reconstructing a slice from sampled slices that, the levels of change are calculated in some fashion in order to create a reconstructed slice and that the reconstructed slice image is in itself an indicia presented to the user indicating calculated levels of change. The secondary reference

to Wang is cited to teach an explicit calculation of change levels and presentation of calculated change levels between each slice (Figs. 12A, 12B and 13 and paragraphs [0077]-[0082]). Wang teaches calculating the levels of change in image data from one slice to the next and displaying them in graphical form as indicia presented to the user (Figs. 12A and 12 B). The motivation to track changes from one slice to the next is to better analyze the medical images in a way to provide better diagnosis and to track the performance of the imaging system itself. Wand teaches that algorithms are used to track changes between the slices in order to better identify masses of a certain size (paragraph [0079]). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to use the slice image data difference calculations and display taught by Wang in combination with the 3D navigation system of Pieper in order to better examine the medical images for diagnosis purposes.

Pieper and Wang teach the method as claimed, but do no explicitly disclose, wherein characterizing a level of change of the image data includes characterizing change due to noise in the image data, and not including changes due to noise in the presented media (Fig. 5D and column 15, lines 5-25). Golay teaches determining Signal to Noise Ratio differences across the multiple slices from one to the next. It would have been obvious to one of ordinary skill in the art to take into account the Signal to noise ratios taught by Golay in order to compensate for noise found in the images.

6. Claims 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of U.S. Patents 5,825,908 to Pieper et al., U.S. Patent Publication No. US2003/0212327 to Wang et al., and 6,106,470 to Geiser et al.

With regard to claim 30, the combination of Pieper and Wang teaches the method of claim 1. Wang teaches calculating the difference between adjacent image slices (Figs. 12A, 12B and paragraphs [0077]-[0082]. However neither Wang nor Pieper explicitly disclose that the calculated difference index is for a specific area in the pair of images or accumulating the absolute values to determine a difference index.

Geiser teaches calculating an absolute value of a difference between corresponding areas in a pair of images (column 8, lines 19-45); and

Accumulating the absolute values of the differences to determine a difference index for a pair of images (column 8, lines 40-45).

Geiser teaches that a correlation index or difference index is determined by analyzing absolute differences on a pixel kernel basis between two adjacent images. Geiser's objective in calculating correlation/difference index between adjacent images is to render a reconstructed 3D image that is compensated for relative shifting between slices that yields a more accurate reconstructed image from the respective corrected slices. Therefore it would have been obvious to one of ordinary skill in the art to use the difference calculation and index taught by Geiser in combination with the slice reconstruction techniques of Pieper and the difference calculations of Wang in order to

better produce an accurate reconstructed image accounting for shifts and differences between slices.

With regard to claim 31, the discussion of claim 30 applies. The same discussion holds true for the reconstructed slices. Pieper teaches reconstructing slices and the difference calculations taught by Geiser also apply.

Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to WESLEY TUCKER whose telephone number is (571)272-7427. The examiner can normally be reached on 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Bella can be reached on 571-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Wes Tucker/
Examiner, Art Unit 2624